

# **CLAIMS**

## **Claim Summary**

### **Claims pending**

- Before this Response: Claims 1, 3-10, and 12-49.
- After this Response: Claims 1, 3-10, and 12-49

**Non-Elected, Canceled, or Withdrawn claims:** none

**Amended claims:** none

**New claims:** none

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## **Claims:**

**1. (Previously Presented)** A computer implemented method of accessing a storage resource for one of a plurality of network-based applications in a multiple server storage system, the method comprising:

obtaining, by a lookup partitioning service server, a resource identifier and a separate application identifier for associating with a storage resource;

determining a looked-up storage server location where said storage resource is located from said lookup partitioning service server based on associating said resource identifier and said application identifier to said looked-up storage server location; and

accessing the storage resource at said looked-up storage server location.

**2. (Canceled)**

**3. (Previously Presented)** The method of Claim 1, wherein said looked-up storage server location is a storage partition on one of a plurality of storage servers.

**4. (Previously Presented)** The method of Claim 3, including a plurality of storage partitions, said plurality including a primary storage partition and a redundant storage partition, each containing said storage resource.

**5. (Previously Presented)** The method of Claim 4, wherein said primary storage partition and said redundant storage partition are each located on separate storage servers of said plurality of storage servers.

**6. (Previously Presented)** The method of Claim 5, wherein, if the primary storage partition is unavailable, the looked-up storage server location is the redundant storage partition.

**7. (Previously Presented)** The method of Claim 1, further comprising determining which lookup partitioning service server of a plurality of lookup partitioning service servers, will provide said looked-up storage server location in response to said resource identifier and said application identifier.

**8. (Previously Presented)** The method of Claim 7, wherein determining which lookup partitioning service server will provide said looked-up storage server location comprises processing said resource identifier through a hash function to provide a hashed resource identifier associated with a particular lookup partitioning service server.

**9. (Previously Presented)** The method of Claim 8, wherein each lookup partitioning service server is associated with a predetermined set of hashed resource identifiers.

**10. (Previously Presented)** A computer readable medium containing computer-executable instructions for performing the method of accessing a storage resource for one of a plurality of network-based applications in a multiple server storage system, the computer-executable instructions comprising instructions for:

obtaining, by a lookup partitioning service server, a resource identifier and a separate application identifier for mapping to a storage resource;

receiving a looked-up storage partition location where said storage resource is located from said lookup partitioning service server based on associating said resource identifier and said application identifier to said looked-up storage server location; and

accessing the storage resource at said looked-up storage partition location.

**11. (Canceled)**

**12. (Previously Presented)** The method of Claim 10, further comprising locating which lookup partitioning service server of a plurality of lookup partitioning service servers will provide said looked-up storage partition location in response to said resource identifier.

**13 (Previously Presented)** The method of Claim 12, wherein locating which lookup partitioning service server will provide said looked-up storage partition location comprises hashing said resource identifier to provide a hashed resource identifier mapped to a particular lookup partitioning service server.

**14. (Previously Presented)** A computer implemented method of managing access to a storage resource for one of a plurality of network-based applications in a multiple server storage system, the method comprising:

obtaining a resource identifier associated with the storage resource from a front end server;

utilizing said resource identifier to locate, in a lookup store of a lookup partitioning service server, a partition of a storage server where said storage resource is located; and

granting access to the storage resource by providing said location of said partition of said storage server to said front end server.

**15. (Previously Presented)** The method of Claim 14, wherein said location of said partition of said storage server is on one of a plurality of storage servers.

**16. (Previously Presented)** The method of Claim 14, including a plurality of storage partitions, said plurality including a primary storage partition and a redundant storage partition each containing said storage resource.

**17. (Previously Presented)** The method of Claim 16, wherein said primary storage partition and said redundant storage partition are each located on separate storage servers of said plurality of storage.

**18. (Previously Presented)** The method of Claim 17, wherein, if the primary storage partition is unavailable, the storage server location is the redundant storage partition.

**19. (Previously Presented)** The method of Claim 14, further comprising determining which lookup partitioning service server of a plurality of lookup partitioning service servers will provide said looked-up storage server location in response to said resource identifier.

**20. (Previously Presented)** The method of Claim 19, wherein determining which lookup partitioning service server will provide said looked-up storage server

location comprises processing said resource identifier through a hash function to provide a hashed resource identifier associated with a particular lookup partitioning service server.

**21. (Previously Presented)** The method of Claim 20, wherein each lookup partitioning service server is associated with a predetermined set of hashed resource identifiers.

**22. (Previously Presented)** The method of Claim 14, further comprising moving the storage resource from one storage partition to a new storage partition and updating said resource lookup store with said new storage partition.

**23. (Previously Presented)** The method of Claim 14, wherein granting access to the storage resource comprises:

determining that no storage resource exists;

creating a new storage resource in a storage partition;

associating said resource identifier with said storage partition in said resource lookup store; and

providing said location of said storage partition to said front end server.

**24. (Previously Presented)** The method of Claim 14, further comprising calculating a load balancing factor for each storage partition of a plurality of storage

partitions and using said load balancing factors to determine the storage partition in which said new storage resource should be created.

**25. (Previously Presented)** The method of Claim 24, wherein said load balancing factor is based on value selected from the values consisting of: a mapping number, a count of mapping accesses, and a manual weighting value.

**26. (Previously Presented)** The method of Claim 24 further comprising adjusting a manual weighting value to increase the usage of said one of said storage servers.

**27. (Previously Presented)** The method of Claim 24, further comprising adjusting a manual weighting value to decrease the usage of said one of said storage servers.

**28. (Previously Presented)** A computer readable medium containing computer-executable instructions for performing the method of managing access to a storage resource for one of a plurality of network-based applications in a multiple server storage system, the computer-executable instructions comprising instructions for:

receiving a resource identifier associated with the storage resource from a front end server;

locating a storage partition where said storage resource is located utilizing said resource identifier in a lookup store of a lookup partitioning service server; and

sending said location of said partition of said storage server to said front end server to grant access to said storage resource.

**29. (Previously Presented)** The method of Claim 28, further comprising determining which lookup partitioning service server of a plurality of lookup partitioning service servers will locate said storage partition in response to said resource identifier.

**30. (Previously Presented)** The method of Claim 28, further comprising relocating the storage resource from one storage partition to a new storage partition and updating the mapping of said resource identifier at said lookup partitioning service server.

**31. (Previously Presented)** The method of Claim 28, wherein granting access to the storage resource comprises:

failing to locate a mapping to a storage resource;

creating a new storage resource in a storage partition;

mapping said resource identifier to said storage partition in said resource lookup store; and

sending said location of said storage partition to said front end server.



**32. (Previously Presented)** The method of Claim 28, further comprising calculating a load balancing factor for each storage partition of a plurality of storage partitions and using said load balancing factors to determine the storage partition in which said new storage resource should be created.

**33. (Previously Presented)** The method of Claim 32, wherein said load balancing factor is based on value selected from the values consisting of: a mapping number, a count of mapping accesses, and a manual weighting value.

**34. (Previously Presented)** A managed resource computer system for allowing one of a plurality of network-based applications in the managed resource computer system to manage storage resources, the managed resource computer system comprising:

a lookup partitioning services ("LPS") server operative to:

- (i) receiving RIDs;
- (ii) in response to the receipt of an RID, identifying a storage partition associated with the RID; and
- (iii) providing the location of the storage partition associated with the RID to a server so that a client device can access said storage partition.

**35. (Previously Presented)** The managed resource computer system of Claim 34, further comprising:

a front end server communicatively coupled to said LPS server for receiving requests for access to storage resources from client devices, said requests for access including an RID.

**36. (Previously Presented)** The managed resource computer system of Claim 35, further comprising:

a storage server, communicatively coupled to said front end server, including a plurality of storage partitions for storing storage resources, each storage resource associated with an RID.

**37. (Previously Presented)** The managed resource computer system claimed in Claim 36, including a plurality of storage servers, each of said plurality of storage servers including a plurality of partitions.

**38. (Previously Presented)** The managed resource computer system claimed in Claim 37, wherein each storage resource is stored in a primary partition on one of said plurality of storage servers and in a redundant partition on another of said plurality of storage servers.

**39. (Previously Presented)** The managed resource computer system claimed in Claim 36, wherein said LPS server includes a lookup store for storing location information that associates storage partition locations with RIDs.

**40. (Previously Presented)** The managed resource computer system claimed in Claim 39 including a plurality of LPS servers, said lookup store being stored on at least two of said LPS servers, one of said at least two LPS servers functioning as a primary LPS server for the lookup store and the other functioning as a redundant LPS server for the lookup store.

**41. (Previously Presented)** The managed resource computer system claimed in Claim 40 including a plurality of storage servers, each of said plurality of storage servers including a plurality of partitions.

**42. (Previously Presented)** The managed resource computer system claimed in Claim 41 wherein each storage resource is stored in a primary partition on one of said plurality of storage servers and in a redundant partition on another of said plurality of storage servers.

**43. (Previously Presented)** The managed resource computer system claimed in Claim 40 wherein:

said front end server includes a hash table; and

said RIDs received by said front end server are processed through said hash table to identify which of said plurality of LPS servers functions as said primary LPS server.

**44. (Previously Presented)** The method of Claim 14, further comprising calculating a load balancing factor for each storage server of a plurality of storage servers and using said load balancing factors to determine the storage partition in which said new storage resource should be created.

**45. (Previously Presented)** The method of Claim 44 further comprising adjusting a manual weighting value to increase the usage of said one of said storage servers.

**46. (Previously Presented)** The method of Claim 44, further comprising adjusting a manual weighting value to decrease the usage of said one of said storage servers.

**47. (Previously Presented)** A computer implemented method of managing access to a storage resource in a multiple server storage system, the method comprising:

obtaining a resource identifier to be associated with the storage resource from a front end server;

utilizing said resource identifier to determine in a lookup store of a lookup partitioning service server that no storage resource exists;

calculating a load balancing factor for each storage server of a plurality of storage partitions;

determining, using said load balancing factors, the storage partitions in which said new storage resource should be created;

creating a new storage resource in said storage partition;

associating said resource identifier with said storage partition in said resource lookup store; and

granting access to the storage resource by providing said location of said partition of said storage server to said front end server.

**48. (Previously Presented)** A computer readable medium containing computer-executable instructions for performing the method of Claim 47.

**49. (Previously Presented)** A computing system comprising a plurality of servers, each including a processor and a memory storing computer-executable instructions for performing the method of Claim 47.